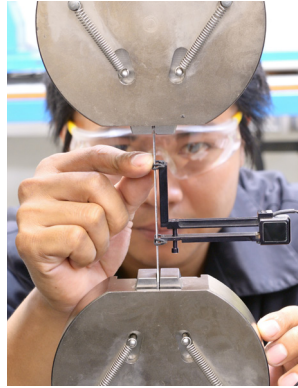


McKinsey Innovation Campus
Aerospace and Defense Practice



Southeast Asia: The next growth opportunity in defense

February 2014



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Southeast Asia: The next growth opportunity in defense

Introduction

The ongoing dynamic growth of economies in Southeast Asia presents defense companies with significant opportunities. Following a sustained period of positive growth, many Southeast Asian countries are building up military capabilities, with an eye toward better protection of their assets, especially the shipping lanes, ports and maritime boundaries that are critical to exports and supply chains. They also seek to defend their territorial integrity in the context of a fast changing security landscape. While defense spending for the region is growing, the scale and pace varies significantly from country to country. Indonesia, for instance, has more than doubled its spending in the past 5 years, whereas Cambodia and Laos are expanding their budgets more slowly.

Modernization and replacement of aging fleets is also driving much of this spending growth. In addition, many countries are today focusing on strengthening their local industrial capabilities, in a bid to end their heavy reliance on foreign suppliers for imports and services. The demand for defense materiel and the gap in capabilities present many opportunities for companies, especially those willing to partner and enable local manufacturing and research and development.

This report discusses prospects in the defense sector in Southeast Asia by outlining the opportunities, highlighting the nuances among the diverse markets in the region and offering insights into what is required to succeed. The first section describes the reasons why defense investment in the region will continue to grow. The second section explains the disparate nature of the market and introduces a segmentation based on defense spending per capita and forecast spending growth. We also identify factors that are critical for success for defense companies looking to do more business in the region.

The rise of defense spending in Southeast Asia

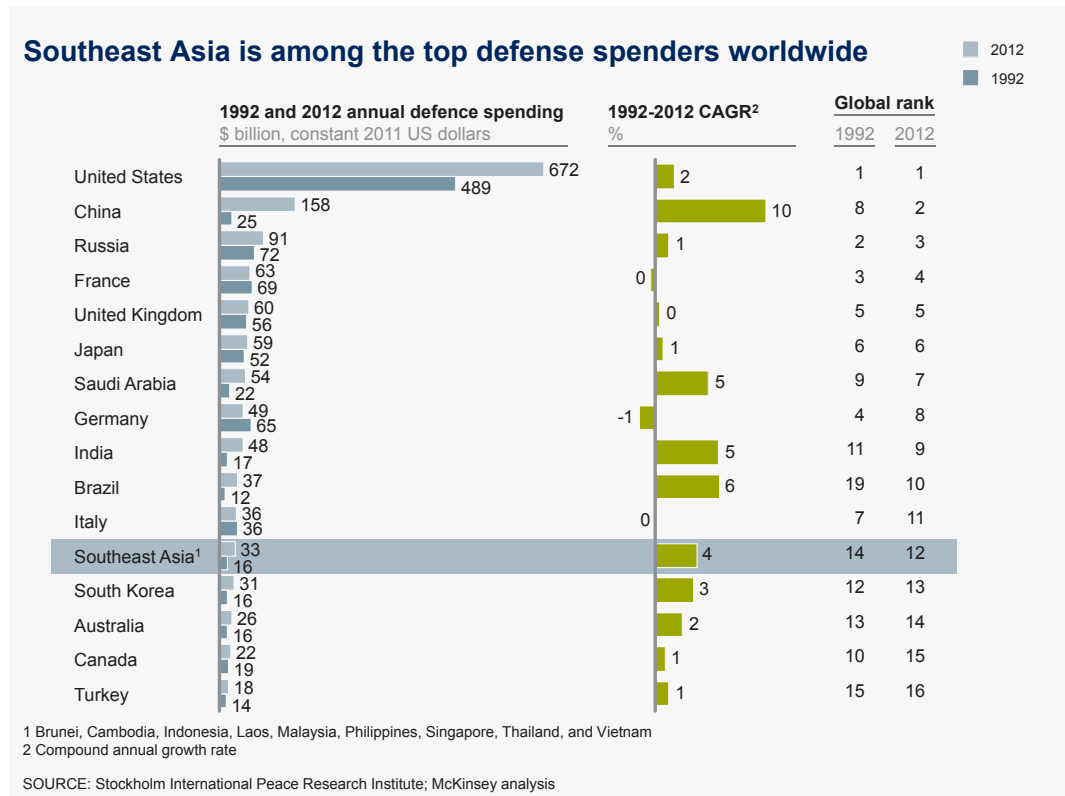
Across the Western world, defense budgets have undergone substantial and far-reaching cuts as a response to, among many factors, reduced war spending in the United States and allies, and austerity policies following the financial crisis. Between 2009 and 2012, the majority of NATO member states slashed their defense spending, several by more than 10 percent. At the same time, a profound shift in economic power is reshaping the global landscape of defense spending. For the first time in more than two centuries—since the start of the Industrial Revolution—the majority of the world’s economic growth took place in the developing world, driven in large part by China, India and other emerging economies. In addition to favorable demographics and reforms to open emerging economies, increasing urbanization is driving much of this growth.¹ In 2012, total world military expenditure was still higher in real terms than the peak experienced near the end of the Cold War.

Emerging markets are now spending more on defense than ever before. Countries such as China, Brazil and India have doubled or even tripled their defense spending during the past two decades. Southeast Asia—Brunei, Cambodia, Indonesia, Laos, Malaysia, Philippines, Singapore, Thailand

¹ Jonathan Ablett and Andrew Erdmann, “Strategy, scenarios, and the global shift in defense power,” *McKinsey on Government: Special issue on Defense*, mckinsey.com, March 2013.

and Vietnam— is now among the top defense spenders globally (Exhibit 1). These countries have collectively doubled their military spend between 1992 and 2012. Warships, maritime patrol aircraft, radar systems and combat planes, along with submarines and naval defense systems, were high on procurement lists.

Exhibit 1



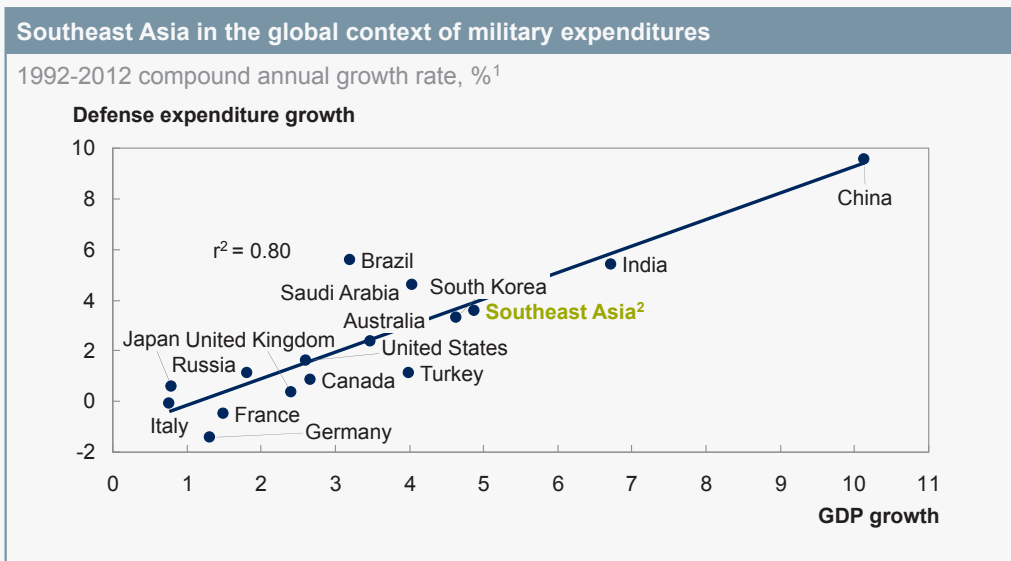
Drivers of growth in defense spending

While Southeast Asian defense markets are still small when compared with neighboring China and India, their outlook is promising. It is useful to consider the three key drivers of defense spending growth to better understand the potential of these markets: surging economies, aging equipment, and the desire to promote the local industry.

Rising incomes and strong economic growth. While a nation’s assessment of its security threats plays a critical role in shaping its defense spending in the near term, a country’s military power ultimately flows from its underlying economic strength over the medium to long term. The faster a country’s economy grows, the more likely its defense spending will increase as well. Despite widely different geopolitical complexities and economic dynamics, the countries with the largest defense budgets, which account for the vast majority of the world’s defense expenditures, have fit this pattern since 1992 (Exhibit 2).

Exhibit 2

Real growth rates in military spending and GDP are correlated in the long term



¹ Includes the 15 nations with the largest defense budgets in 2012, representing 84% of global defense spending
² Brunei, Cambodia, Indonesia, Laos, Malaysia, Philippines, Singapore, Thailand, and Vietnam

SOURCE: Stockholm International Peace Research Institute; IHS Economics; McKinsey analysis

Southeast Asian markets are among the most dynamic in the world; their combined economies have been growing at an average of 5 percent since the 1980s. Growth is widespread with sectors such as manufacturing, logistics, financial services, real estate and construction growing by more than 5 percent annually between 2002 and 2011. The region is rapidly urbanizing; 57 million people across the region moved to cities during the same decade—30 million of them in Indonesia alone. Rising incomes are also fueling growth; by 2017, nearly 90 percent of the region's 133 million households will earn discretionary income greater than \$5000 per annum.²

Looking ahead, Southeast Asian economies are expected to continue on this trajectory through 2020 and sustain the same brisk pace of growth. Vietnam and Indonesia are expected to lead the pack with about 6 percent annual growth, placing Southeast Asia among the world's fastest growing regions, ahead of Africa and Latin America.

Force modernization and fleet replacement. Today, many developing countries aspire to keep pace with the demands of modern security challenges and technological advancements that have become widely accepted in developed markets. There has been significant innovation in military technology and operations over the past two decades—precision guided munitions have evolved, advanced missiles now pose particular threats, and unmanned aerial vehicles (or remotely piloted air systems) are now standard in many military inventories. Harnessing big data and employing

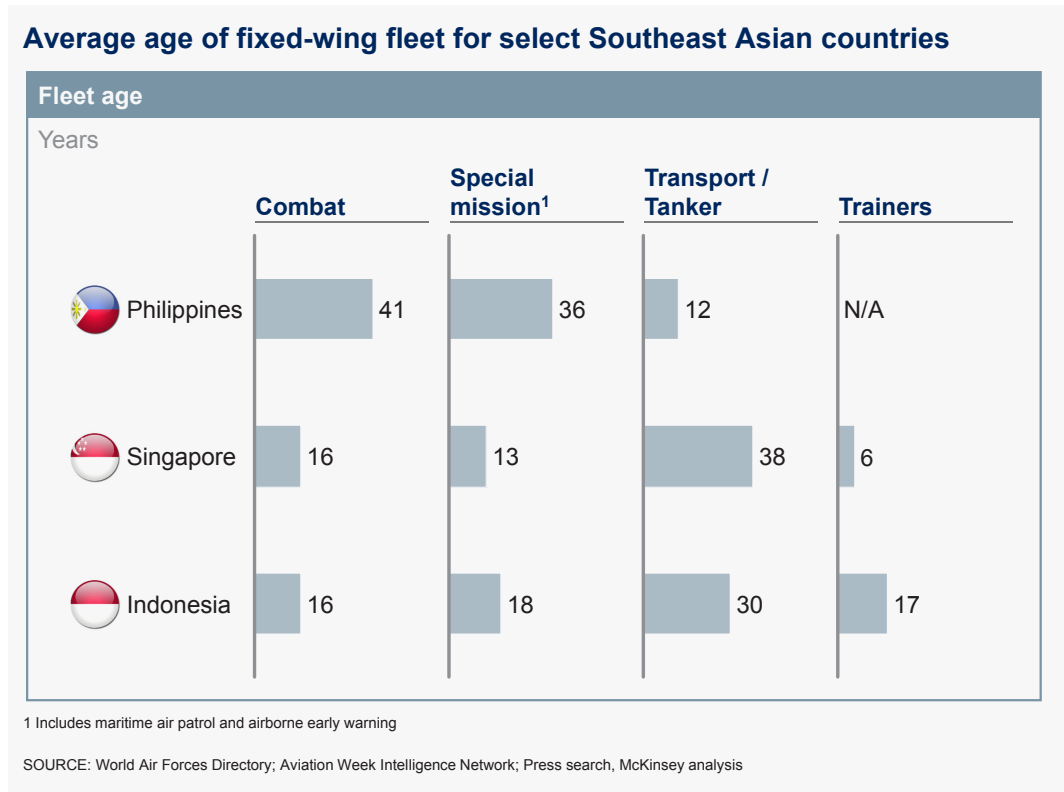
² All figures stated in this report are in U.S. dollars.

advanced analytics are other features of the 21st century military strategy to which Southeast Asian countries aspire.

The nature of security threats has also changed. Defense forces increasingly have to confront adversaries who employ a full spectrum of tactics, from conventional to irregular and even criminal. Countries are challenged, for instance, by both traditional and unconventional foes, including pirates and asymmetrical threats such as terrorist suicide speedboats, people trafficking, and smuggling. Cyber warfare has moved from theory to practice. All of these factors are raising the imperative for countries to upgrade and modernize their defense capabilities.

Southeast Asia defense forces, with the exception of certain categories in Singapore, are characterized by ageing fleets that were mostly acquired during the 1970s and 1980s and are now in need of replacement (Exhibit 3). Countries have recognized the urgency, and significant investments are expected through 2017. The Philippines, for instance, has awarded contracts to replace its aging UH-1 Huey helicopters with eight AgustaWestland-109 utility helicopters.³ Vietnam is purchasing 12 Sukhoi SU-30MK2V fighters and related equipment from Russia, to augment its existing fleet of 12 Sukhoi SU-27 and 12 Sukhoi SU-30MKs.⁴ Singapore recently announced its intention to invest \$2.43 billion to modernize its F-16 fighter jets.⁵

Exhibit 3



³ *Philippines orders AW109 helicopters*, United Press International, November 6, 2013.

⁴ *Russia Sells Vietnam 12 Sukhoi Fighters*, Agence France-Presse, August 21, 2013.

⁵ Andrea Shalal-Esa, "U.S. firms eye \$2.43 billion Singapore F-16 order," *Reuters*, January 22, 2014.

Fostering local industrial capabilities. Few countries have been able to develop an independent, local defence industry. Most lack the complex, interdependent capabilities in research, industry and organization needed to design and produce state-of-the-art defense materiel.⁶ As a result, they spend significant budget to import equipment or assemble under license.

Most countries' capabilities extend only to low-tech development and maintenance, repair and overhaul (MRO) of imported products. In some cases, countries in the region are seeking to jointly develop both defense and broader industry capabilities through targeted local defense manufacturing. For example, ThalesRaytheonSystems (TRS) signed a \$164 million deal to supply Indonesia with its ForceSHIELD Short-Range Air Defense System.⁷ As part of the contract, TRS is expected to work with and transfer radar manufacturing skills and knowledge to Indonesian state-owned electronics firm PT LEN Industri.

An exception is Singapore, which is already active in the development of high technology defense materiel such as weaponry, weapons systems and land and marine vessels—with capabilities on par with international competitors. Singapore Technologies, for example, is a global integrated engineering group with capabilities in aerospace, marine and land systems.

The rest of the region continues to rely on foreign technologies, and foreign firms have a dominant presence in these markets. As Southeast Asian countries strive to develop their own broader industrial capabilities, partnerships with international defense players could provide an avenue for capability and knowledge transfers. This would enable countries to grow not only their defense industry base but also benefit adjacent industries, supply chains and local distribution networks.

While imports of defense materiel will continue to be important for complex products, the longer-term goal is that the supply of equipment, parts and services will come from indigenous sources. One success story to consider is Turkey's development of an indigenous defense industry. Over the course of two decades, the country adopted a smart offset policy that enabled intellectual property and technology transfers, established a single agency to supervise procurement and policy, and invested heavily in R&D. More than half of Turkey's defense equipment today is provided by local suppliers, and the country has built an export industry supplying several countries with globally competitive products. Small scale developments have gained some early wins in Southeast Asia; Thailand, for instance, with its 4x4 multipurpose armoured vehicle from Thai company Chaiseri built in partnership with U.S.-based DRS Technologies, a Finmeccanica subsidiary. The drive to secure local industrial benefits through defense procurement is expected to gain more importance as countries strive to build up and modernize their military capabilities.

Given the drive by countries in Southeast Asia to modernize and expand their defense capabilities, we expect defense spending to grow in the medium to long term, sustained by steady economic growth. Likely areas of defense spending could include:

- **Versatile platforms.** Multipurpose upgradable platforms allow countries to scale up and modernize their military within budget considerations. For instance, platforms capable of air-to-ground and air-to-air missions are not only useful as trainers but also serve air-to-ground

6 Martin Lundmark, *Acquiring and Absorbing New Military Capabilities: Defence Technology Acquisition for Defence-Aspiring Asia Pacific Nations Through Technology Policy and Bilateral Partnering*, S. Rajaratnam School of International Studies, October 2013.

7 *Indonesia orders air defense system from Thales UK*, United Press International, January 16, 2014.

combat functions. Examples include the Philippines' planned purchase of Korea Aerospace Industries FA-50 aircraft that are designed for training and light attack.

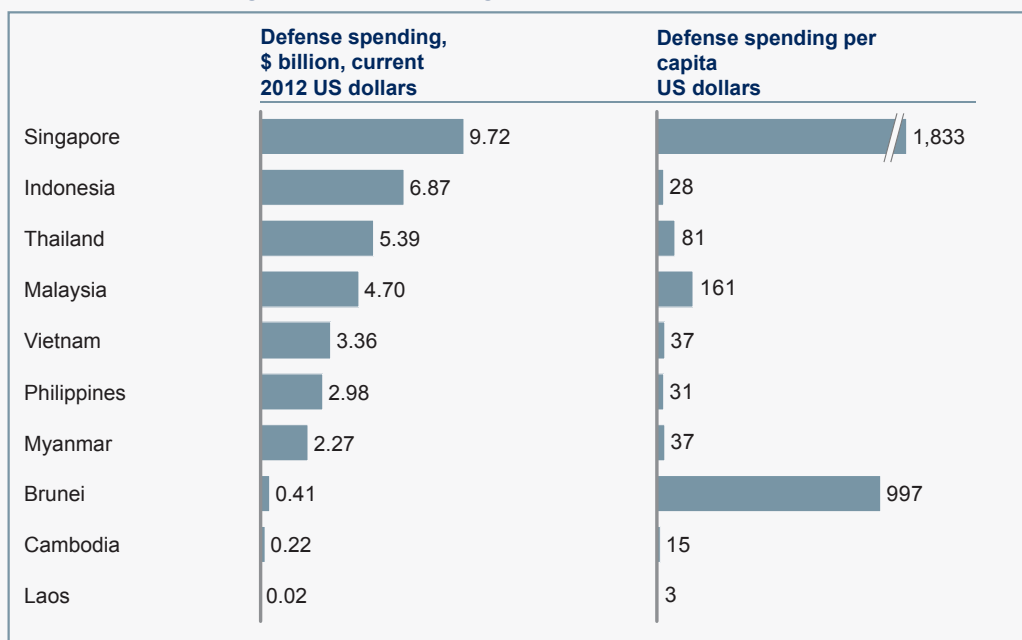
- **Special-mission aircraft.** The growing need to secure coasts and borders against asymmetric threats (e.g., piracy, drug trafficking, terrorist attacks) provides an opportunity for special-mission aircraft that have capabilities in areas such as maritime patrol, anti-submarine and airborne early warning and control, and that also offer the versatility to undertake both military and non-military missions. Indonesia's acquisition of the maritime patrol and surveillance version of the CASA/IPTN CN235 is one such example.
- **Cargo and transportation.** Southeast Asia defense forces may require troop transport aircraft and lift capabilities for which demand has increased in humanitarian aid and disaster relief work. For example, the Airbus A400M, purchased by Malaysia, can be used in a wide range of missions such as transporting emergency supplies and evacuation.

Heterogeneous markets

While the Southeast Asian defense market as a whole is growing rapidly, market structures for each country vary widely, driven by big differences in economic profiles, defense capabilities, and needs. GDP per capita, for instance, varies widely with a gap of more than 95 percent between Singapore and Cambodia. These differences persist when it comes to defense markets (Exhibit 4).

Exhibit 4

Defense markets in Southeast Asia are heterogeneous varying widely in their defense budgets and spending per capita



SOURCE: Stockholm International Peace Research Institute; Military Balance 2013; IHS Economics; McKinsey analysis

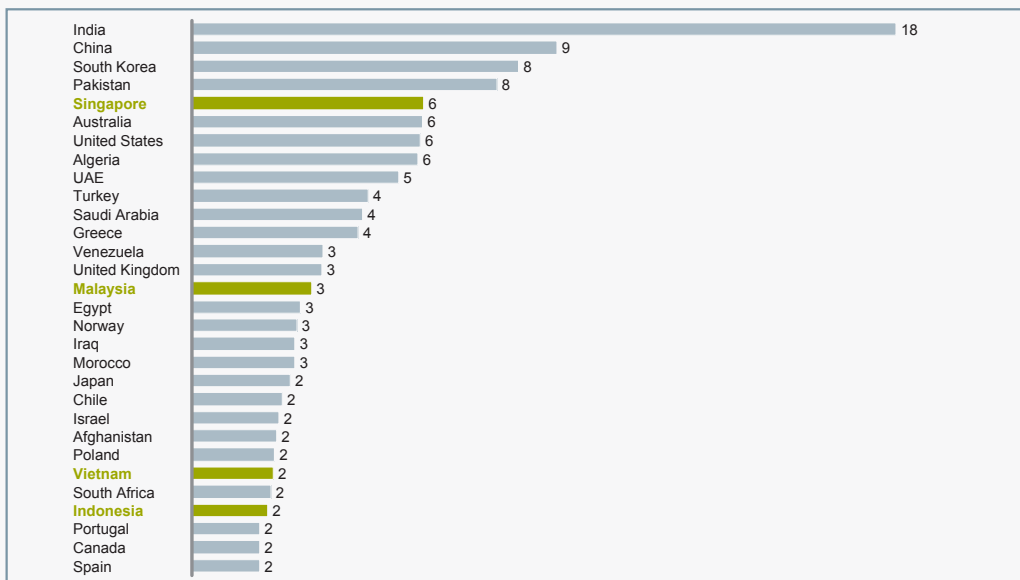
Spending and sourcing trends

As discussed, many Southeast Asian countries rely heavily on defense imports. Singapore, Malaysia, Vietnam and Indonesia are already among the top defense importers worldwide (Exhibit 5).

Exhibit 5

Singapore, Malaysia, Vietnam and Indonesia are already among the top defense importers worldwide

Aggregate sum of defense imports, 2007-2012, \$ billion, constant 1990 US dollars, TIV¹



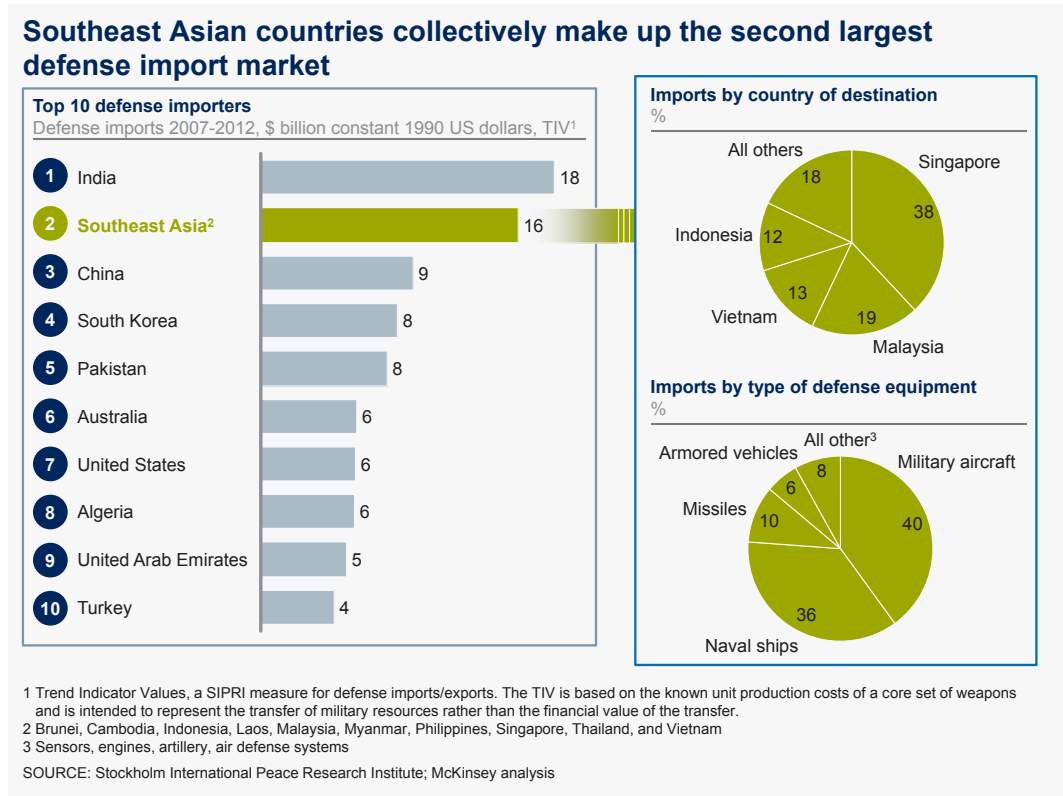
¹ Trend Indicator Values, a SIPRI measure for defense imports/exports. The TIV is based on the known unit production costs of a core set of weapons and is intended to represent the transfer of military resources rather than the financial value of the transfer.

SOURCE: Stockholm International Peace Research Institute Arms Transfer Database; McKinsey analysis

Between 2007 and 2012, Southeast Asia collectively made up the second largest military import market worldwide according to the Stockholm International Peace Research Institute (SIPRI).⁸ Within this group, Singapore accounted for 38 percent of the total, followed by Malaysia, Vietnam and Indonesia at 19 percent, 13 percent and 12 percent respectively (Exhibit 6). Aircraft and ships made up 40 and 36 percent of equipment imports, with the remaining split between missiles, armored vehicles and others.

⁸ To measure imports, SIPRI calculates Trend Indicator Values (TIV) based on the known unit production costs of a core set of weapons. The measure is intended to represent the transfer of military resources rather than the financial value of the transfer.

Exhibit 6



Southeast Asian countries acquire their defense imports from a variety of sources globally, underlining the highly competitive nature of markets for aerospace and defense companies. Singapore, Indonesia, Thailand and Malaysia have balanced their supplies across multiple sources including the U.S., Europe, Russia and South Korea. Vietnam, by contrast, has traditionally had a strong defense procurement relationship with Russia, while the Philippines has tended to import largely from the U.S. (Exhibit 7).

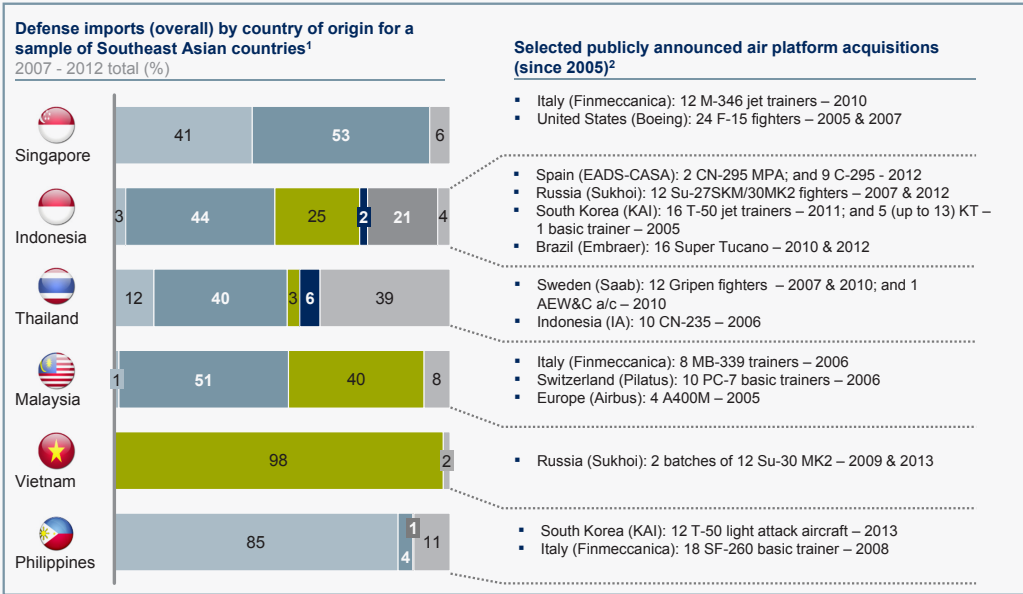
To understand the implications of increased defense spending by the countries of Southeast Asia and to assess the market potential we segmented the markets into three categories based on spending per capita and forecasted spending growth (Exhibit 8).

1. “Sophisticated” markets focused on purchasing high-end equipment and seeking sophisticated and state-of-the-art technology (e.g., Singapore);
2. “Affordable expansion” markets that are increasing defense budgets substantially to replace, expand or upgrade existing equipment and capabilities (e.g., Indonesia);
3. “Selective investment” markets that are increasing their defense budgets more conservatively and therefore prioritizing their investments (e.g., Thailand).

Exhibit 7

Southeast Asian defense markets are highly competitive based on their imports from multiple sources worldwide

- United States
- Western Europe
- Russia
- China
- South Korea
- Other

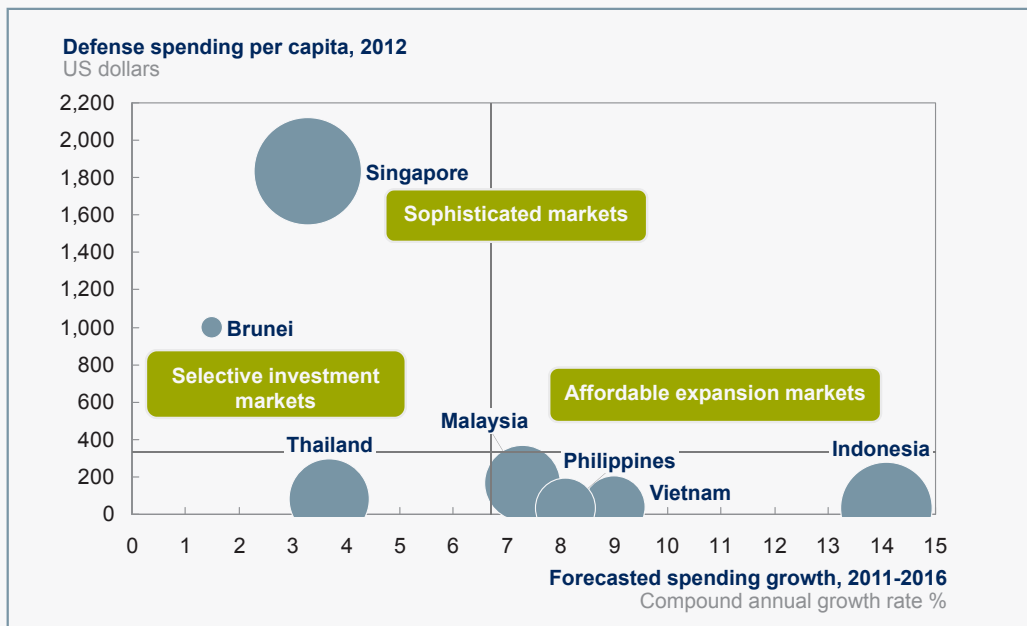


¹ Stockholm International Peace Research Institute
² Defense & Aerospace Competitive Intelligence Service Infobase, Defense Industry Daily, McKinsey analysis, Press search and open source media

Exhibit 8

Three market segments based on forecast spending growth and spending per capita

- Defense spending, 2012
Current USD billion
- Sample average



SOURCE: Stockholm International Peace Research Institute; Military Balance 2013; IHS Economics; Jane's Defense Weekly; McKinsey analysis

Considerations for capturing growth

Companies can boost the effectiveness of their strategy, distribution networks, and marketing by prioritizing market segments and sequencing the order in which markets are targeted.

Keeping in mind the heterogeneity, defense companies can consider the various opportunities that Southeast Asia's diverse markets present using three criteria:

- Market attractiveness based on market size, growth, stability and sector demand (e.g., replacing equipment, force modernization).
- Market dynamics based on defense policy goals, budgets, procurement systems, local industry strength, competitors and supplier relationships.
- Foreign direct investment and offset requirements that determine market entry and organization structure for international players. Singapore, for example, is open to foreign investment subject to government approval. In Thailand, production and distribution of some equipment (such as firearms, ammunition, military vehicles) is permitted upon government approval. Vietnam, in contrast, prohibits private participation and any foreign direct investment into the country's defense sector.

Affordability, availability of financing options, local partnerships and offset fulfillment came up as critical factors for companies to win in Southeast Asia, with each country requiring a nuanced approach. To ensure companies are thinking strategically about how to stay ahead in the region, they should ask themselves a number of questions related to where and how they operate:

- Have we compared existing defense capabilities against policy goals and security challenges to identify capability and equipment gaps in the selected market?
- Do we have the capabilities to assess market potential at a granular level? Have we evaluated expansion plans for the selected country by thoroughly examining defense budget trends by category, existing equipment platforms (their age and capabilities), and expected future acquisitions?
- Have we identified country needs and winning factors? For instance, are they interested in industry development partnerships and R&D collaboration?
- How does the market view and value capability and technology transfer programs? How much are we willing to invest in building up after-sales maintenance, spare parts re-fabrication and engineering capabilities locally?
- How do we plan to strengthen our relationships with governments and the local defense and security community?
- How are we prioritizing our global and regional market strategy given the diversity in defense spending and forecast growth within Southeast Asia?



As a result of its heterogeneity, the Southeast Asian defense market differs from established markets in the West. The diversity and dynamism of the region defies a one-size-fits-all approach. It is clear that emerging economies will catch up with developed economies in the top tier of defense spenders. Many countries in the region have recognized the need to foster local industrial capabilities, and are pursuing a variety of initiatives including wider partnerships, capability building and technology transfer programs and increased R&D budgets. Those companies willing to take a differentiated look at the individual countries and willing to invest in building local capabilities will get a head start in a nascent but promising defense market, and will likely emerge successful.

John Dowdy and **David Chinn** are senior partners in McKinsey's London office. **Matteo Mancini** is an associate partner in the Singapore office where **Jonathan Ng** is the Head of the McKinsey Innovation Campus.

CASE STUDY: INDONESIA

Indonesia is in the throes of a rapid transformation, swept along by its position at the heart of the world's most dynamic economic region, rapid urbanization, and rising incomes that will propel an additional 90 million Indonesian people into the world's consuming class by 2030.¹ The country has recorded one of the most consistent growth rates among global economies during the past decade with nearly 6 percent annual GDP growth. Growth in Indonesia's consuming class is stronger than in any economy of the world apart from China and India, and is a signal to foreign businesses and investors of the country's considerable new opportunities.

Indonesia has sharply increased its defense budget over the past 5 years from \$3.2 billion in 2007 to \$8.1 billion in 2013. At present, the country is striving to modernize and augment its existing fleet of aircraft with more than two dozen F-16s on order (Exhibit). The existing fleet is aging, underequipped in maritime patrol, airborne early warning and anti-submarine capabilities. The Indonesian Navy received its first CN-235 maritime patrol aircraft last year from state aircraft manufacturer PT Dirgantara Indonesia (Indonesian Aerospace).² The country's Defense Ministry recently announced its intent to replace aging Grumman F-5 Tigers that have been in service for about 30 years with several jet fighters, including Russian, American and Swedish aircraft.³ Unmanned aerial vehicles (UAVs) are also under consideration.

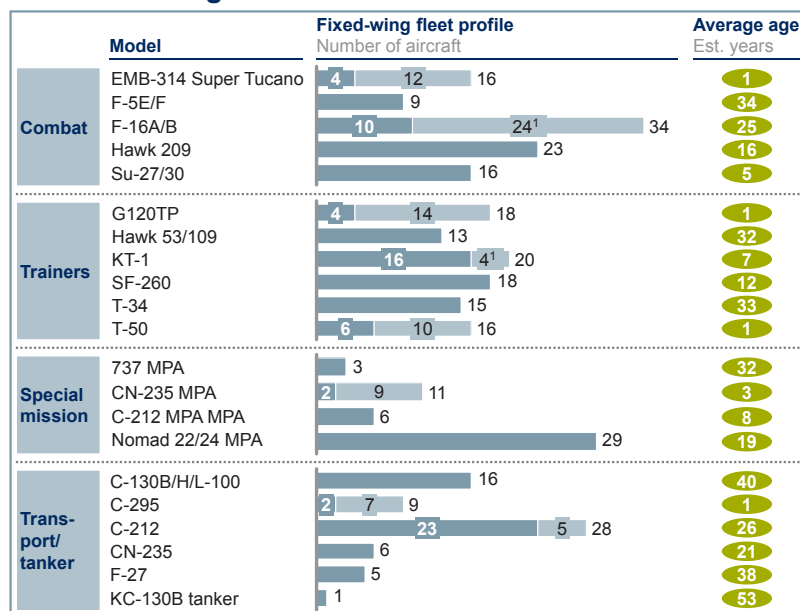
Indonesia is looking to carry out this modernization in order to better protect its coasts, sea, and borders; provide relief and response in situations of natural disasters; and decrease

its dependency on foreign suppliers for spares and ongoing maintenance. Its policy goals also include developing a local industry, especially in electronic equipment for surveillance. PT Dirgantara Indonesia has been the preferred national champion for aircraft contracts, and local industry experience thus far is in basic communication systems. Defense acquisitions tend to be driven by government-to-government relationships. Indonesian defense law requires companies to prioritize sourcing local materials and components whenever available. In addition, there is a requirement for offset production in international procurement deals of at least 35 percent of the total contract value. This may be met in several forms such as collaboration, joint venture, buyback, knowledge transfer, and training.

For defense companies to gain momentum in Indonesia, the following factors are useful to consider:

- Indonesia's need for flexible platforms that can address multiple needs including disaster relief and transport.
- A "value-centric" approach to satisfy the dual needs of modernization and affordability
- Collaborative partnerships to build both manufacturing and sustainment capabilities, particularly in areas that have been historically lagging (e.g., radars). For example, Spain-based Airbus Military has a long-standing relationship with PT Dirgantara Indonesia in military aircraft production. The two companies recently signed a deal to locally manufacture and market the NC212 aircraft.⁴

Indonesia's priorities are modernization and expansion of its fixed-wing fleet



¹ Refurbished former US F-16 C/D, requested by Indonesia in November 2011, delivery expected in mid-2014

SOURCE: World Air Forces Directory 2014; Jane's All the World's Aircraft; Stockholm International Peace Research Institute, Military MRO database (Aviation Week); McKinsey analysis; Press search

■ In service
■ On order/to be ordered

Potential opportunities

- Given its vast coastline, Indonesia will likely require more aircrafts with special mission capabilities in:
 - Marine patrol
 - Airborne early warning systems
 - Anti-submarine
- Unmanned aerial vehicle (UAV) units under consideration
- Strong focus on modernization

1 Arief Budiman, Richard Dobbs, Raoul Oberman, Morten Rosse, and Fraser Thompson, *The Archipelago Economy: Unleashing Indonesia's Potential*, McKinsey Global Institute, September 2012.

2 *Indonesia receives first CN-235 patrol aircraft*, United Press International, October 10, 2013.

3 *Indonesia closes in on Grumman F-5 Tiger replacement*, United Press International, Jan 17, 2014.

4 Nurfika Osman, "Digantara, Airbus Military to make new aircraft in Bandung," *Jakarta Post*, November 9, 2012.

Acknowledgements

The authors would like to thank Oliver Tonby, Nadine Grießmann, Wolff Sintern, Andreas Raabe, Penny Burt, Mrinalini Reddy and Cody Newman for their contributions in conducting the research and analysis, and helping to produce this report.



